WHAT IS CLAIMED IS:

1. A process for optically transmitting data to a remote receiver, comprising:

receiving a stream of input data signals;

modulating a mid-IR laser by direct modulation with a waveform whose sequential values are responsive to the data signals of the stream, the direct modulation including pumping the mid-IR laser to produce high and low optical power levels in response to different ones of the values; and

transmitting output light from the modulated mid-IR laser to the remote receiver via a free space communications channel.

2. The process of claim 1, wherein the remote receiver is configured to identify received light associated with the high optical power level and the low optical power as "signal-on" and "signal-off" states of the mid-IR laser, respectively.

3. The process of claim 2, wherein the modulating a mid-IR laser by direct modulation includes pumping a gain region of the laser with a modulation current whose successive values are responsive to the data signals of the stream.

4. The process of claim 1, wherein the modulating by direct modulation pumps the mid-IR laser to be in a lasing state during first intervals in response to input data signals having first signal values and to be in a non-lasing state during second intervals in response to input data signals having second signal values.

5. The process of claim 4, wherein the first intervals are shorter than the second intervals.

6. The process of claim 5, wherein the first and second signal values are first and second digital values, respectively.

7. The process of claim 2, wherein the modulating produces light of a wavelength between about 3.5 microns and about 24 microns.

8. The process of claim 1, wherein the wavelength of the produced light is at least as long as about 8 microns and not longer than about 13 microns.

9. The process of claim 1, wherein the wavelength of the produced light is at least as long as about 3.5 microns, not longer than about 5 microns, and not in a CO_2 absorption peak located at about 4.65 microns

10. The process of claim 1, wherein the modulating produces light in a spectral window in which atmospheric attenuation is lower than at adjacent wavelength ranges.

11. The process of claim 1, wherein the transmitting sends sequential modulated optical values at a rate that is at least as high as 1 giga-Hertz.

12. The process of claim 1, wherein the transmitting sends sequential modulated optical values at a rate that is at least as high as 2 giga-Hertz.

13. An optical transmitter, comprising:

a mid-IR laser having an optical gain media; and

a modulator connected to modulate pumping of the gain media during modulation intervals in a manner that is responsive to values of data signals received in associated data intervals, the modulator configured to cause the mid-IR laser to produce one optical power level in portions of ones of the modulation intervals associated with one value of the data signals and to produce relatively lower optical power levels in remainders of the ones of the modulation intervals associated with the one value of the data signal.

14. The transmitter of claim 13, wherein the modulator is configured to cause the mid-IR laser to lase in the portions of the intervals and to not lase in the remainders of the intervals.

15. The optical transmitter of claim 13, wherein the modulator applies a voltage across the gain media to modulate pumping of the media.

16. The transmitter of claim 13, wherein the mid-IR laser is a quantum cascade laser.

17. The transmitter of claim 13, wherein the mid-IR laser is configured to produce light with a wavelength of at least about 8 microns and not longer than about 13 microns.

18. The transmitter of claim 13, wherein the mid-IR laser is configured to produce light with a wavelength that is at least as long as about 3.5 microns, that is not longer than about 5 microns, and that is not in a CO_2 absorption peak located at about 4.65 microns

19. The transmitter of claim 13, wherein the mid-IR laser produces light in a spectral window in which atmospheric absorption is lower than at adjacent wavelength ranges.

20. The transmitter of claim 13, further comprising:

collimating optics positioned to collimate output light from the mid-IR laser into a beam with a diameter of at least 1 millimeter.

21. The optical transmitter of claim 13, wherein the modulator applies an optical pumping light to the gain media to modulate pumping of the gain media.

22. The optical transmitter of claim 13, wherein the modulator transmits an electrical current through the gain media to modulate pumping of the gain media.